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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,799	08/07/2008	Axel Weyer	207,648	8761

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EXAMINER	
KERNS, KEVIN P	
ART UNIT	PAPER NUMBER
1793	
MAIL DATE	DELIVERY MODE
09/03/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,799	WEYER ET AL.	
	Examiner	Art Unit	
	Kevin P. Kerns	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-22* is/are rejected.

7)☒ Claim(s) *18-21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/5/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 2 of the amendments to the specification in the amendment of August 5, 2010, replace the heading "BACKGROUNG" with "BACKGROUND". Appropriate correction is required.

Claim Objections

2. Claims 18-21 are objected to because of the following informalities:

In claim 18, 1st line, delete "1" before "A method".

In claim 19, 1st line, replace "sequenced" with "sequence".

In claim 20, 4th line, replace "temporarily" with "temporary".

In claim 21, 1st line, replace "21" with "12" (or another claim ranging from 13 to 20) after "claim" since this claim incorrectly depends from itself.

In claim 21, 4th line, replace "temporarily" with "temporary".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 12-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Streubel et al. (WO 02/090019 A1) – also see the US equivalent reference of Streubel et al. (US 7,025,118) for translation of the German text of WO 02/090019 A1.

Regarding independent claims 12 and 22, Streubel et al. disclose both an apparatus and method of determining a position of a solidification point during continuous casting of liquid steel (abstract and Figure of WO 02/090019 A1, as well as the abstract; column 1, lines 15-26; column 2, lines 34-67; column 3, lines 1-53; column 4, lines 1-10; and Figure of equivalent US 7,025,118), in which the apparatus and method include the following features:

determining a liquid core volume of the liquid core 7 in the strand shell 8 of the cast strand 5 within a continuous casting mold 1 (column 3, lines 25-49); and

indirectly measuring the liquid core 7 (i.e. the solidification point 9 of the cast strand 5) by adjusting drive roller pairs (4,4') that support and guide the cast strand 5 based on a calculation model (for a momentary, or temporary, position of the solidification point during the casting process) via direct measurement of the adjustable drive roller pairs (4,4'), such that the liquid core 7 is continuously adjusted as dependent upon casting parameters, such as strand thickness, casting speed, casting temperature etc. (column 2, lines 42-57; column 3, lines 50-53; column 4, lines 1-10; and Figure).

Regarding claims 13 and 14, the measurement is operable to be further based on the adjustable thickness of the strand 5 (column 3, lines 31-45) and based on change of the stop plug position (i.e. liquid steel flow through melt inlet 6 of Figure 1) in front of the continuous casting mold 1 (which would be an inherent step since

solidification is controlled based on the position and force applied by the support rollers (4,4') and the plug on the continuous casting mold 1 to not allow for liquid metal backflow out of the casting mold).

Regarding claims 15 and 16, the measurement is operable to be further based on melt level and melt volume change of the receptacle adjacent the melt inlet 6, such that the solidification point 9 of the liquid core 7 in the strand shell 8 of the cast strand 5 is continuously adjustable (column 3, lines 50-53; column 4, lines 1-10; and Figure).

Regarding claims 17 and 19, the measurement is operable to be further based on continuously adjustable clamping forces and positions of the support rollers (column 3, lines 31-49; and Figure).

Regarding claim 18, the calculation model is based on automatic adjustment of the support rollers (column 3, lines 25-53).

Regarding claims 20 and 21, the support rollers (4,4') are adjusted by an adjustable piston-cylinder arrangement (i.e. position-controlled hydraulic cylinders), such that the support rollers (4,4') are arranged on the loose side of the casting mold 1, as this is the side where the support rollers (4,4') are operable to move into the other opposite rollers for compression on the cast strand 5 to temporarily change the local position of the solidification point 9 (column 3, lines 25-53; and Figure).

Response to Arguments

5. The examiner acknowledges the applicants' amendment and Information Disclosure Statement (IDS) received by the USPTO on August 5, 2010. The IDS has

been considered and initialed, and a copy is provided with this Office Action. The amendments overcome the prior objections to the specification and claims, as well as the prior 35 USC 112, 2nd paragraph rejections. However, a specification objection (see above section 1) and objections to claims 18-21 (see above section 2) have been raised by the amendments. The applicants have cancelled claims 1-11, while adding new claims 12-22. Claims 12-22 are currently under consideration in the application.

6. Applicants' arguments filed August 5, 2010 have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments on pages 8-10 of the amendment, it is noted that the applicants' main argument is that Streubel et al. fail to teach the claimed limitation "producing a calculation model for a momentary position of the solidification point based on the force and/or path signals, and continuously adjusting changeable casting parameters based on the produced calculation model" (of independent claim 12). The applicants further explained (in the last paragraph on page 9 of the remarks section) that Streubel et al. instead teach a method of *"maintaining the sump-melt cavity tip (solidification point) approximately constant in the SR (soft reduction) stretch…achieved in Streubel et al. by controllably reducing the strand thickness between the SR stretch and the mold by adjusting roller of a respective roller pair"*. However, the examiner respectfully disagrees with the applicants' argument that Streubel et al. allegedly do not teach the claimed invention. Due to the applicants' broad claimed limitation, Streubel et al. still read on the claimed invention as argued above. In

this instance, the "momentary position of the solidification point" (as claimed) is not sufficient to be supported by the arguments to render the teachings of Streubel et al. deficient. As mentioned above by the applicants, Streubel et al. disclose "maintaining the solidification point approximately constant in the SR stretch". This feature means that the force and/or path signal(s) are momentarily or constantly changed in order for the rollers to maintain the solidification point. If the applicants are able to distinctly define the claimed invention specifically to have solidification point changes at different locations on the cast strip/slab while casting, then it may overcome the teachings of the Streubel et al. reference. In view of the above reasons, claims 12-22 are rejected.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns
Primary Examiner
Art Unit 1793

/Kevin P. Kerns/
Primary Examiner, Art Unit 1793
September 1, 2010